

REMARKS

Claim 17 has been amended in response to the objection set forth in Paragraph 1 of the outstanding action. Further, claim 20 has been amended to correct an obvious typographical error, i.e., there was no space appearing between "claim" and "19".

In response to the prior art rejections under 35 U.S.C. 102(b) in Paragraphs 3 and 4 of the outstanding Office Action, the prior art rejection under 35 U.S.C. 102(e) in Paragraph 5 of the outstanding Office Action and the prior art rejections under 35 U.S.C. 103(a) in Paragraphs 7 and 8 of the outstanding Office Action, the sole independent claim in this application, i.e., claim 1 has been canceled and new independent claim 31 has been added in its stead. The dependent claims that read on claim 1 have been amended to be dependent on claim 31.

New claim 31 is clearly not anticipated by, and further is clearly patentable over the cited prior art for several reasons: First, the term - -consisting essentially of - - has been utilized in describing the content of the underlayer and the topcoat layer to "close" the areas encompassed by these layers. Thus, it is now clear that the underlayer consisting essentially of a Group IIa metal oxide cannot include any three-way conversion catalyst and the top layer consisting essentially of at least one layer of a three-way catalyst cannot include any Group IIa metal oxide. Indeed, the language employed in describing the at least one topcoat layer makes it clear that the topcoat layer is a discrete layer which is segregated from the underlayer (the support for such language will be found on page 4, line 9-13 of the specification). Thus, in the layered catalyst of the invention as defined by new claim 31, there is no intermixing of the Group IIa metal oxide and the three-way conversion catalyst in any of the layers.

Turning now to the cited references, Lindner et al. (EP 0 885 650 corresponding to US 6,348,430 B1) is relied upon for the rejection in Paragraph 3 of the outstanding Office Action. For the purpose of convenience, the corresponding U.S. patent, hereinafter referred to as the '430 patent, will be discussed below.

In the '430 patent, the first layer consists of a mixture of one or more highly dispersed alkaline earth metal oxides, at least one platinum group metal and at least one finely divided oxygen-storing component. It is further stated that "... at least one other finely divided component and the platinum group metals are in close contact with all the constituents in the first layer," see column 4, lines 25-34. This is further emphasized in column 5, lines 19-24 wherein it is stated: "The arrangement is wherein the platinum group metals in the first layer are in close contact with all the constituents in this layer that is with both all the finely divided solids in the layer and also with all portions of the highly dispersed materials." In all of the examples as well as in the claims, it is clear that Lindner et al require that the first layer contain a mixture of alkaline earth metal oxides, at least one platinum group metal and at least one finely divided oxygen-storage component.

In contradistinction to the teachings of the '430 patent, the present invention as defined by new claim requires that there must not be any intermixing of the three way-conversion catalyst and the Group IIa metal oxides in the underlayer nor any intermixing of the Group IIa metal oxide with the three-way conversion catalyst in the at least one topcoat layer. Thus, the present invention is the direct opposite of the Lindner et al. invention. Accordingly, the '403 patent should be withdrawn as a basis for rejection of the claims under 35 U.S.C. 102 (b) and/or 35 U.S.C. 103(a).

Kurokawa et al., U.S. 6,066,587 (hereinafter referred to as the '587 patent) is distinguishable from the present invention defined by new claim 31 for the same reasons as presented above in respect to the '430 patent. In the '587 patent, the catalyst "... contains zeolite by which precious metal is supported in an over catalyst layer and at least platinum and an alkaline earth metal in a base catalyst layer" (see column 1, line 66 to column 2, line 2). Column 3, lines 44-48, state:

The honeycomb carrier 1 bears two catalyst layers, namely an base or base catalyst layer 2 and an over or over catalyst layer 3. The base catalyst layer 2 contains platinum (Pt) and barium (Ba) as an alkaline earth metal which are supported by alumina.

Not only do Kurokawa et al. Mix the precious metal and the alkaline metal in the base layer, but they teach the over catalyst layer 3 which contains platinum (Pt.) as a precious metal and zeolite "... may further contain barium (Ba.) added as an alkaline earth metal as like in the base catalyst layer 2. (see column 3, lines 58-65).

Further, Kurokawa et al. disclose in column 4, lines 15-18 their rationale for including both a precious metal and an alkaline earth metal in the base catalyst layer. The disclosures in the remainder of the '587 patent pertaining to the examples and the claims thereof are consistent with the teaching by Kurokawa et al. to the effect that the base catalyst layer must contain both a precious meta and an alkaline earth metal and optionally, the upper layer containing the precious metal component may also contain an alkaline earth metal.

The disclosures in the '587 patent are directly opposite to the requirement of the present invention as defined by new claim 31, i.e., there must not be any intermixing of the three way-conversion catalyst and the Group IIa metal oxides in the underlayer nor any intermixing of the Group IIa metal oxide with the three-way conversion catalyst in the at least one topcoat layer. Accordingly, the '587 patent should be withdrawn as a basis for rejection of the claims under 35 U.S.C. 102 (b) and/or 35 U.S.C. 103(a).

Deeba et al., US 2003/0100447 A1, fails as an anticipatory reference for the same reasons as discussed above in respect to the Lindner et al. and Kurokawa et al. patents. In Paragraphs 0031-0032, Deeba et al. teach that the first layer which is deposited upon the carrier comprises a high surface area support such as gamma alumina, up to 30 g/ft³ of platinum, up to 0.75 g/in³ of an oxygen storage composition, up to 0.3 g/in³ of a stabilizer such as barium and/or strontium oxide, and up to 0.3 g/in³ of a promoter, including lanthanum oxide. Thus, Deeba et al. also teach that the first layer contains a mixture of an alkaline earth metal oxide and a three-way conversion catalyst, i.e., platinum and an oxygen storage component. However, the instant invention as defined by new claim 31 requires that there not be a mixture of the Group IIa metal oxide (such as barium and/or strontium oxide) and a three-way conversion catalyst (such as platinum plus an oxygen storage component) present in the first layer.

A further distinction between the present invention and the Deeba et al. disclosure relates to the composition of the top layer. In Paragraphs 0033-0034, Deeba et al. teach that the second layer comprises a high surface area support such as gamma alumina, 20-200 g/ft³ of platinum, 0-10 g/ft³ of palladium, up to 0.3 g/in³ of a stabilizer and up to 0.3 g/in³ of a promoter. If the second layer is equivalent to the topcoat layer of the present invention or if, as stated by the examiner that the

second and third layers are considered to correspond to the topcoat layer of the present invention, then Deeba et al. must be considered as teaching that the topcoat layer containing the three-way conversion catalyst must also contain an alkali metal oxide, i.e., a stabilizer such as barium and/or strontium oxide. However, new claim 31 requires that there not be any alkali metal oxide, i.e., Group IIa metal oxide, present in an admixture with the three-way conversion catalyst in the topcoat layer. Therefore, Deeba et al. also teach the direct opposite of the present invention. Accordingly, the Deeba et al. published patent application must be withdrawn as a basis for rejection of the claims under 35 U.S.C. 102 (e) and/or 35 U.S.C. 103(a).

The secondary Wan patent, i.e., U.S. 5,057,483 (hereinafter referred to as the '483 patent) is cited for the disclosure of honeycomb carriers constructed of a refractory ceramic material such as cordierite or a refractory metal such as stainless steel (column 4, line 65-column 5, line 10). Applicants concede that before their invention, it was well known to use a refractory ceramic material or a refractory metal as a carrier for an exhaust gas treatment catalyst. However, the deficiencies of the primary references (i.e., Lindner et al., Kurokawa et al. and Deeba et al. are not overcome by the disclosures of the '483 patent. Indeed, Wan teaches away from the present invention for substantially the same reasons as discussed above in respect to the primary references.

In the '483 patent, Wan teaches that the catalyst consists of two discrete coats on a carrier. The first coat includes a stabilized alumina support on which a first platinum catalytic component is dispersed and bulk ceria, and may also include bulk iron oxide, a metal oxide (such as bulk nickel oxide) which is effective for the suppression of hydrogen sulfide emissions, and one or both of baria and zirconia dispersed throughout the first coat as a thermal stabilizer, see the Abstract, column 3, lines 34-48 and column 5, line 46 to column 8, line 34. Wan also teaches that the second coat containing the three-way conversion catalyst may also contain a thermal stabilizer such as alkaline earth metal oxides and rare earth metal oxides (column 10, lines 37-43).

In contradistinction to the disclosures in the '483 patent, in the present invention, the bottom layer, i.e., the underlayer must consist essentially of a Group IIa metal oxide and this feature is not optional as taught by Wan. Moreover, the underlayer of the present invention must not contain a three-way conversion catalyst, e.g., a platinum catalyst and bulk ceria. Furthermore, the topcoat

layer, i.e., the second layer, containing the three-way conversion catalyst must not contain any alkaline metal oxides as taught as a possibility by Wan. Accordingly, the '483 patent must be withdrawn as a basis for any rejection under 35 U.S.C. 102 (b) and/or 35 U.S.C. 103(a).

By way of summary, it is clear new claim 31 with its limitations therein taken with the remarks set forth above detail why new claim 31 is neither anticipated by nor deemed unpatentable under any of the cited references taken alone or in combination thereof. Accordingly, it is respectfully requested that this application be re-examined and promptly passed to issue forthwith.

If the Examiner wishes to discuss this case with the undersigned attorney, he may be reached at (973) 467-5626.

Respectfully submitted,



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